VA/DoD CLINICAL PRACTICE GUIDELINE FOR SCREENING AND MANAGEMENT OF OVERWEIGHT AND OBESITY

Department of Veterans Affairs
Department of Defense

Guideline Summary

OBESITY

Key Elements Addressed By the Guideline

1. Routine primary care screening for overweight and obesity.
2. Assessment of risk factors and obesity-associated conditions influenced by weight.
3. Evidence-based strategies for weight loss and weight maintenance for patients who are overweight or obese.
4. Promotion of lifestyle changes (diet and exercise) in persons with normal weight to prevent weight gain.
5. Advice for persons who are overweight (BMI of 25-29.9 kg/m^2) without obesity-associated conditions, to maintain or lose weight and prevent weight gain.
6. The involvement of patients in their education, goal setting, and decision-making process.
7. Strategies to achieve sustained weight loss by creating an energy deficit (when energy expenditure is greater than caloric intake).
8. The combination of dietary therapy, increased physical activity, and behavioral modification therapy as the key components of weight loss therapy.
9. Weight loss drug therapy as an adjunct to long-term diet and physical activity for patients who are obese (BMI > 30 kg/m^2), or are overweight with a BMI > 27 kg/m^2 and present with obesity-associated conditions.
10. Weight loss (bariatric) surgery as an option for patients with extreme obesity (BMI ≥ 40 kg/m^2) or a BMI of ≥ 35 kg/m^2 with one or more obesity-associated conditions in whom other methods of weight loss treatment have failed.

VA access to full guideline: http://www.oqp.med.va.gov/cpg/cpg.htm
DoD access to full guideline: http://www.qmo.amedd.army.mil/pguide.htm

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VA/DoD Evidence-Based Practice

SUMMARY OF THE AVAILABLE EVIDENCE FOR KEY RECOMMENDATIONS			
	Strong level of evidence	**Limited level of evidence**	**Unknown efficacy or insufficient evidence**
Screening	• BMI correlates with disease risk	• BMI relates to fat distribution • Waist circumference is related to disease and fat distribution	–
Weight Loss	• Combination of diet therapy, physical activity, and behavioral modification leads to weight loss • Weight loss improves glycemic control, dyslipidemia, and blood pressure	• Weight loss improves sleep apnea, metabolic syndrome, and osteoarthritis	• Weight loss effect on cardiovascular disease • Weight loss effect on survival
Diet Therapy	• Calorie restriction results in weight loss • Adherence to diet is more important than the specific diet choice	• Low fat or low carbohydrate diets may be better for weight loss	• Diet based on glycemic index • Protein-sparing diet
Physical Activity	• Physical activity and restricted calorie diet leads to weight loss • Physical activity increases fitness and reduces cardiovascular risk • Physical activity should be for at least 30 minutes most days of the week	• Physical activity is essential to maintain weight • Multiple intermittent bursts of exercise are effective • Lifestyle physical activities are as good as structured exercise	–
Behavioral Therapy	• Behavioral modification enables compliance with diet and exercise programs • Multiple behavioral modification strategies should be used • High intensity of the intervention is essential	• Group behavioral modification has better results than individual	• Which behavioral modification technique is better
Pharmaco-therapy	• Orlistat and sibutramine may lead to weight loss • Orlistat improves glycemic control, dyslipidemia, and blood pressure • Drugs have adverse effects	• Sibutramine improves secondary outcomes (cholesterol and glycemic control)	• Long-term safety and effectiveness
Surgery	• Surgery is effective for reducing weight in patients with extreme obesity (BMI $\geq$ 40 kg/m^2) or $\geq$ 35 kg/m^2 with comorbid conditions	• Surgery may improve comorbid conditions (glycemic control, dyslipidemia and blood pressure)	• Preoperative selection and assessment criteria • Long-term safety and effectiveness

Executive Summary

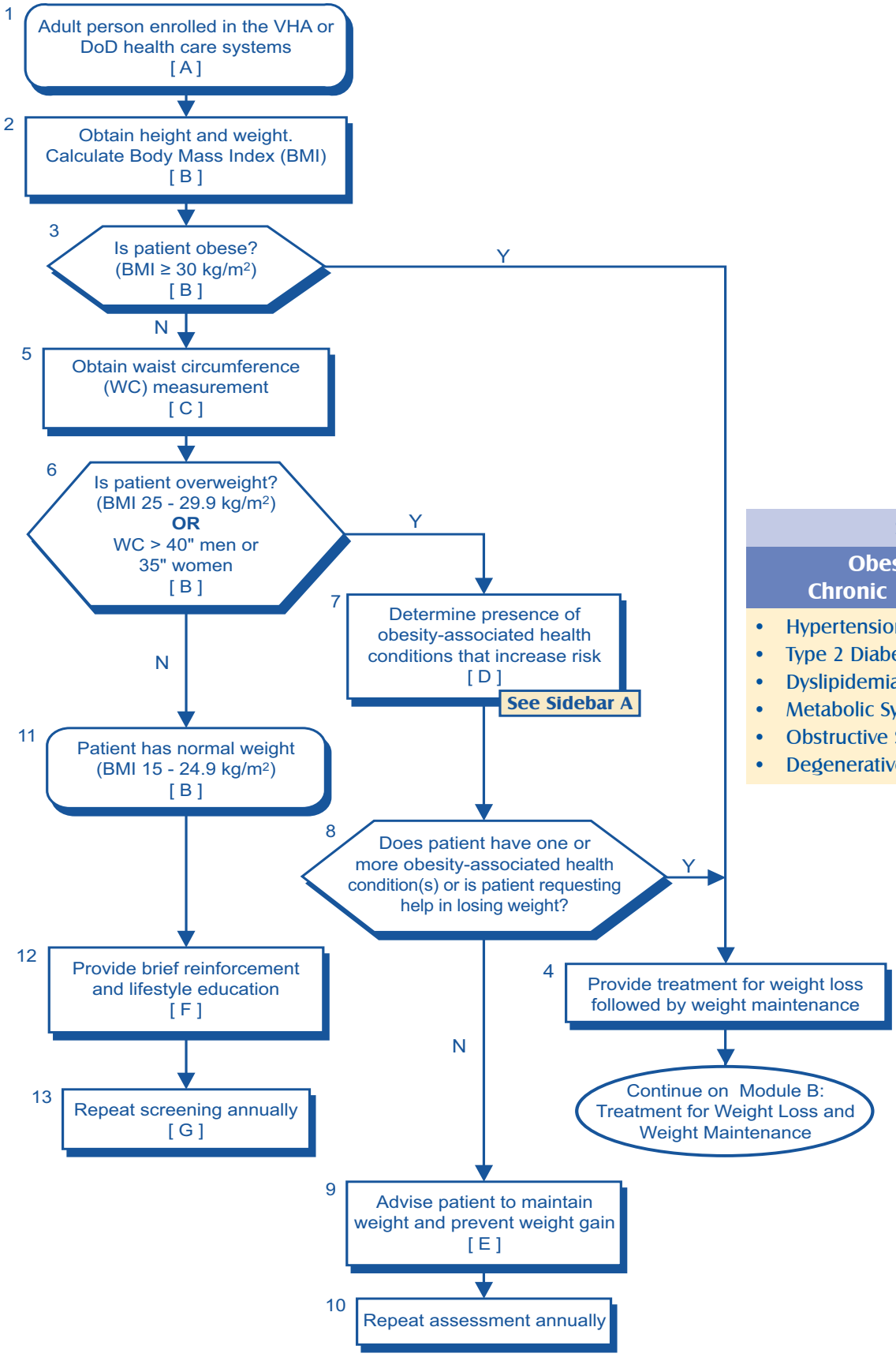
Obesity is recognized as a chronic disease resulting from a combination of biological and environmental factors. Obesity is a significant health problem that deserves the same attention and long-term intervention as other serious, chronic health conditions.

Effective treatment produces substantial health benefits in the form of reduced blood pressure and cholesterol levels and improved glycemic control. Even modest weight reduction in obese and overweight individuals can reduce the risk factors for diabetes and cardiovascular disease (CVD), in addition to other health benefits including increased longevity. Unfortunately, many healthcare professionals do not aggressively address the issue of obesity with their patients. Body mass index (BMI) and waist circumference (WC) determinations can be performed easily and they aid in assessing a patient's risk for developing obesity related morbidity and the urgency of achieving weight loss.

A successful weight loss program is based primarily on proper dietary guidelines, increased physical activity, and behavioral modification therapy strategies. A weight maintenance program should follow the weight loss period to prevent weight regain. Drug therapy, as an adjunct to these measures, can provide effective long-term weight loss and weight maintenance. Orlistat and sibutramine, both currently FDA-approved for weight loss treatment, have been shown to be safe and effective when used over periods of up to four years and two years, respectively. For extreme cases of obesity, bariatric surgery may produce dramatic weight loss.

VA/DoD Clinical Practice Guidelines

Management of Overweight and Obesity
Module A: Screening for Overweight and Obesity



Sidebar A

Obesity-associated Chronic Health Conditions

- Hypertension
- Type 2 Diabetes
- Dyslipidemia
- Metabolic Syndrome
- Obstructive Sleep Apnea
- Degenerative Joint Disease

A Level of Evidence | **B Level of Evidence**

Module A. Screening for Overweight and Obesity Recommendations

A. Adult Person Enrolled in the VHA or DoD Healthcare Systems

DEFINITION

Any adult eligible for care in the Veterans Health Administration (VHA) or the Department of Defense (DoD) healthcare delivery system should be screened and if necessary, treated for overweight or obesity as described in this guideline. (See Module B: Treatment for Weight Loss and Weight Maintenance)

B. Obtain Height and Weight; Calculate Body Mass Index (BMI)

1. Adult patients should have their BMI calculated from their height and weight to establish a diagnosis of overweight or obesity. [B] (See Table 1)
2. Obese patients (BMI ≥ 30 kg/m^2) should be offered weight loss treatment. [B] (See Module B: Treatment for Weight Loss and Weight Maintenance)
3. Overweight patients (BMI between 25 and 29.9 kg/m^2) or patients with increased waist circumference (> 40 inches for men; > 35 inches for women) should be assessed for the presence of obesity-associated conditions that are directly influenced by weight, to determine the benefit they might receive from weight loss treatment. [B]
4. Normal weight patients (BMI between 18.5 and 24.9 kg/m^2) should be provided with education regarding healthy lifestyle behaviors, advised of their BMI and their weight range margins, and instructed to return for further evaluation should those margins be exceeded. [Expert Opinion]

C. Obtain Waist Circumference Measurement

5. For screening purposes, waist circumference should be obtained in patients with a BMI < 30 kg/m^2 as a predictor of disease risk. [C]
6. The waist circumference measurement should be made with a tape measure placed above the iliac crest and wrapped in a horizontal fashion around the individual's abdomen at the end of a normal expiration.
7. Gender-specific cut-offs should be used as indicators of increased waist circumference. [C]
   - Men: waist circumference > 40 inches (102 cm)
   - Women: waist circumference > 35 inches (88 cm)

D. Determine Presence of Obesity-Associated Health Conditions that Increase Risk

8. Weight loss treatment should be offered to patients with one or more of the obesity-associated conditions that are directly influenced by weight loss (i.e., hypertension, type 2 diabetes, dyslipidemia, metabolic syndrome, obstructive sleep apnea) [B]; or with degenerative joint disease (DJD). [I] (See Table 2)

E. Advise Patient to Maintain Weight and Prevent Weight Gain

9. Overweight patients (BMI 25 – 29.9 kg/m^2) who do not have associated risk factors should be offered brief advice, encouraged to maintain or lose weight, and offered assistance in establishing reasonable weight loss goals as well as diet and exercise plans if they seek help in losing weight. [I]

10. Overweight patients without obesity-associated conditions should be provided with education regarding healthy lifestyle behaviors, be advised of their BMI and their weight range margins and instructed to return for further evaluation should those margins be exceeded. BMI and risk factors should be reassessed annually. [Expert Opinion]

F. Provide Brief Reinforcement and Lifestyle Education

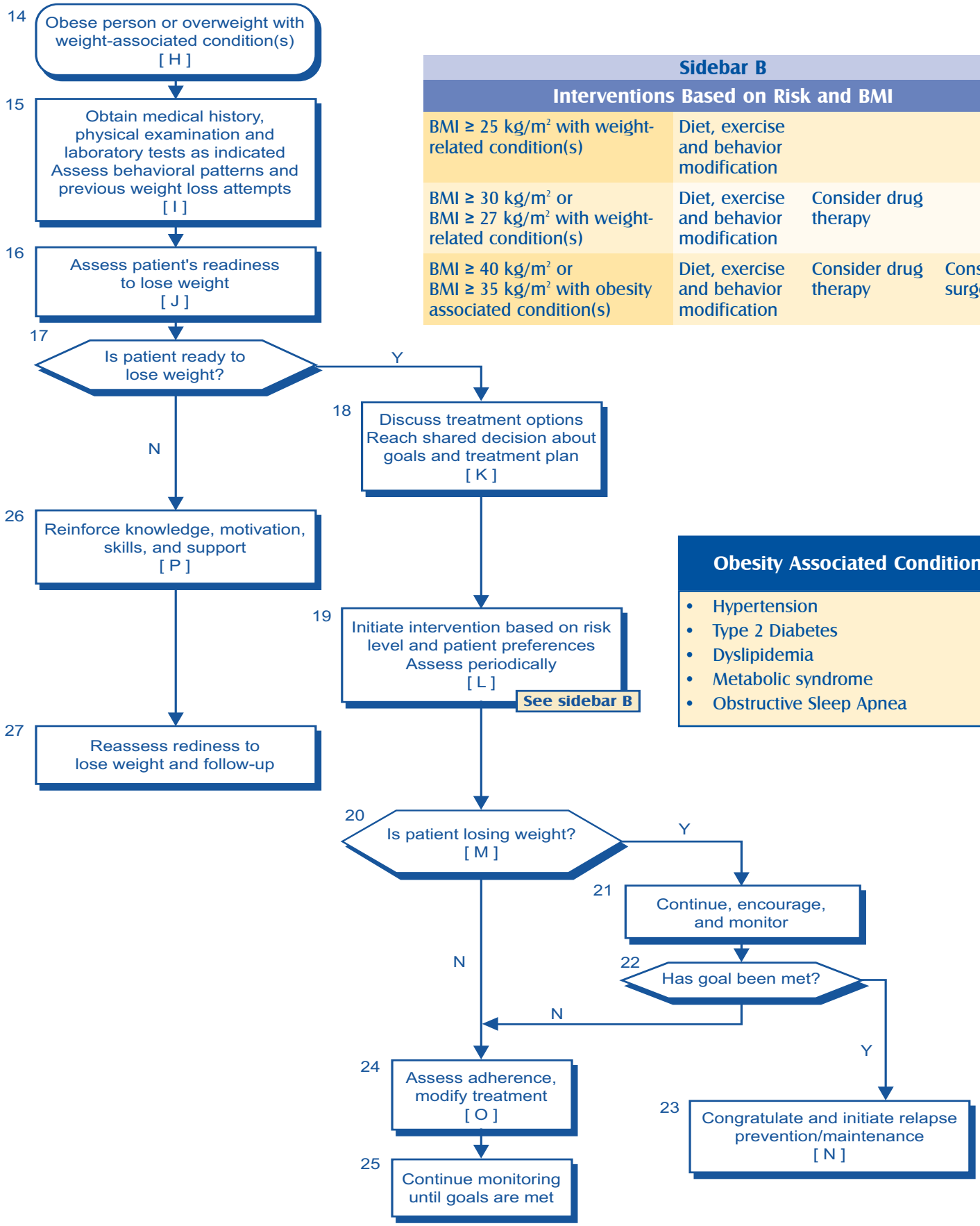
11. Patients of normal weight should be praised, encouraged to maintain their normal weight, and educated regarding a healthy lifestyle to include: [Expert Opinion]

    - A balance between caloric intake and energy expenditure
    - A healthy diet emphasizing, whenever possible, fresh fruits and vegetables (see – MyPyramid at http://www.mypyramid.gov)
    - Regular, moderately intense physical activity for more than 30 minutes, five or more days per week
    - Additional healthy lifestyle elements related to weight maintenance that may include tobacco use cessation, limited caffeine intake, sleep hygiene, and stress management

G. Repeat Screening Annually

12. Screening for overweight and obesity should be performed at least annually. [Expert Opinion]

Management of Overweight and Obesity
Module B: Treatment of Weight Loss and Weight Maintenance



Sidebar B

Interventions Based on Risk and BMI

BMI ≥ 25 kg/m² with weight-related condition(s)	Diet, exercise and behavior modification		
BMI ≥ 30 kg/m² or BMI ≥ 27 kg/m² with weight-related condition(s)	Diet, exercise and behavior modification	Consider drug therapy	
BMI ≥ 40 kg/m² or BMI ≥ 35 kg/m² with obesity associated condition(s)	Diet, exercise and behavior modification	Consider drug therapy	Consider surgery

Obesity Associated Conditions

- Hypertension
- Type 2 Diabetes
- Dyslipidemia
- Metabolic syndrome
- Obstructive Sleep Apnea

Module B. Treatment for Weight Loss and Weight Maintenance Recommendations

ASSESSMENT

H. Obese Person or Overweight with Obesity-Associated Condition(s)

DEFINITION

Patients who are obese, and patients who are overweight or have an elevated waist circumference with one or more obesity-associated conditions should be offered treatment for the reduction of body weight.

I. Obtain Medical History, Physical Examination, and Laboratory Tests as Indicated

13. The clinical assessment of the overweight or obese patient should be done by the primary care provider. The assessment should include a basic medical history, a relevant physical examination, and laboratory tests as clinically indicated. The history should include age of onset or periods of rapid increase in body weight, precipitating factors, and maximum lifetime weight. [Expert Opinion]

14. The clinical assessment should rule out organic and drug related causes and identify health risks and/or the presence of weight-related conditions. [Expert Opinion] (See Table 3)

15. In addition to a medical assessment, a social and psychological assessment may be indicated to identify barriers to participating in dietary or physical activity programs. The assessment may also include screening for behavioral health conditions that may hinder successful weight loss (i.e., depression, post-traumatic stress disorder, anxiety, bipolar disorder, addictions, binge eating disorder, bulimia, and alcoholism). [Expert Opinion]

16. A nutritional evaluation should include an assessment of current intake as well as the use of supplements, herbs, and over-the-counter weight loss aides. In addition, meal and snack patterns and problem eating behaviors need to be assessed. The weight and dieting history should include the age of onset of weight gain, number and types of diets and attempts, possible triggers of weight gains and losses, and range of weight change. [Expert Opinion]

17. Current levels of physical activity and sedentary lifestyle should be assessed, including exercise frequency, duration, and intensity as well as the patient's motivation to increase physical activity. [Expert Opinion]

J. Assess Patient's Readiness to Lose Weight

18. Readiness to lose weight should be assessed by direct inquiry. Those indicating an adequate readiness to lose weight (preparation or action stage) should proceed to treatment. Those not yet ready to lose weight (precontemplation or contemplation stage) should receive motivational counseling. [Expert Opinion]

K. Reach Shared Decisions about Goals and Treatment Plan

19. The clinical team, together with the patient, should reach shared decisions regarding the treatment program. [Expert Opinion]

    - The clinical team should convey to the patient that obesity is a chronic disease that will require lifelong treatment
    - The clinical team should suggest the personalized preferred treatment options based on disease risk and patient characteristics (e.g., describe to the patient/caregiver the treatment options, including behavioral modification, diet and activity patterns, prognosis, estimated length and frequency of therapy, and expectations)
    - The patient should describe his or her needs, preferences, and resources and assist the team in determining the optimal environment for therapy and preferred interventions
    - The patient and the clinical team together should reach conclusions on the goals of therapy and preferred treatment plan

20. The patient's family/caregiver may participate in the treatment process and should be involved in assisting the patient with changing lifestyle, diet, and physical activity patterns. [Expert Opinion]

21. Patient education should be provided in an interactive and written format. The patient should be given an information packet that includes printed material on subjects such as preferred foods to eat or foods to avoid, healthy lifestyle tips, support group information, and available audio/visual programs on weight loss. [Expert Opinion]

22. A detailed treatment plan should be documented in the medical record to provide integrated care. [Expert Opinion]

L. Initiate Interventions Based on Risk Level and Patient Preferences

23. Weight loss therapy should be tailored to risk level based on calculated BMI and based upon the balance of benefits and risks and patient preferences. [C]

24. Patients who may benefit from weight loss should be offered interventions to improve their diet, increase physical activity, and change related behaviors to promote weight loss. [A]

25. Weight loss interventions should combine dietary therapy, increased physical activity, and behavioral modification strategies rather than utilizing one intervention alone. [A]

26. A reasonable initial goal of weight loss therapy (intervention) is a 10 percent reduction in body weight. [B]

27. Drug therapy in combination with a reduced-calorie diet and exercise interventions should be considered for obese patients (BMI > 30 kg/m^2) or overweight patients (BMI ≥ 27 kg/m^2) with an obesity-associated chronic health condition (i.e., hypertension, type 2 diabetes, dyslipidemia, metabolic syndrome, and sleep apnea). [B] (See Table 4)

28. Bariatric surgery to reduce body weight, improve obesity-associated comorbidities, and improve quality of life may be considered in adult patients with a BMI ≥ 40 kg/m^2 and those with a BMI ≥ 35 kg/m^2 with at least one obesity-associated chronic health condition (i.e., hypertension, type 2 diabetes, dyslipidemia, metabolic syndrome, and sleep apnea). [B]

29. There is insufficient evidence to recommend drug or surgical interventions specifically for patients who have documented coronary artery disease (CAD). [I] However, there is good evidence that drug and surgical weight loss interventions may improve cardiovascular risk factors, such as hypertension, dyslipidemia, and diabetes mellitus. [A]

30. There is insufficient evidence to recommend drug or surgical interventions specifically for patients who have degenerative joint disease (DJD). However, physical activity and diet may improve physical function and chronic pain in patients with DJD. [I]

M. Is Patient Losing Weight?

31. Patients on diet, exercise, and behavioral therapy who have lost on average 1 to 2 pounds per week should continue with their current treatment until their weight loss goal is achieved. [B]

32. Patients who have lost on average less than 1 pound per week should have their adherence to therapy assessed and treatment plan reevaluated. [I]

33. Obese patients with a BMI > 30 kg/m^2 , and overweight patients with a BMI > 27 kg/m^2 and obesity-associated chronic health conditions who fail to achieve adequate weight loss through non-pharmacologic interventions may be candidates for pharmacotherapy with orlistat or sibutramine. [B] (See Module C, Section C-4 Pharmacotherapy recommendations)

N. Congratulate and Initiate Relapse Prevention/Maintenance

34. Patients who have met their weight loss goals or have stopped losing weight and are ready to sustain current weight loss should be offered a maintenance program consisting of diet, physical activity, and behavioral support. Weight status should be reevaluated and diet and physical activity should be adjusted so that energy balance is maintained (energy intake is equal to energy expenditure). [B]

35. Providers should continue to maintain contact with patients providing on-going support, encouragement, and close monitoring during the maintenance phase of weight loss to prevent weight regain. [B]

36. Patients who achieve their weight loss goal with a combination of medication, diet, and exercise may be considered candidates to include their medication as a component of their weight maintenance program with continued monitoring of effectiveness and adverse effects. [B] (See Module C, Section C-4 Pharmacotherapy recommendations)

37. There is no established optimum visit length or duration between maintenance visits, but it seems reasonable to establish a minimum of quarterly follow-up (every three months) for the sustainment of weight loss and more frequently if the patient requests it. [I]

O. Assess Adherence and Modify Treatment

38. Adherence to weight loss programs should be assessed by periodically measuring the patient's BMI and waist circumference and providing feedback. [Expert Opinion]

39. Patients should be encouraged to record activities by using food logs, exercise logs, and personal diaries to provide structure and allow the provider to identify compliance or relapse issues. [B]

P. Reinforce Knowledge, Motivation, Skills, and Support

40. Motivational interviewing techniques should be utilized to motivate patients to improve their dietary habits. [B]

41. Motivational interviewing techniques should be considered to motivate patients to increase their physical activity. [Expert Opinion]

42. Patients who may benefit from weight loss but are not willing to attempt to lose weight at this time should receive brief, non-judgmental motivational counseling designed to increase their motivation to lose weight. This counseling should include discussion about: [Expert Opinion]

- Relevance: connection between overweight and current symptoms, disease, and medical history

- Risks: risks of continued overweight status, tailored to individual risk/relevance of cardiovascular disease or exacerbation of pre-existing disease
- Rewards: potential benefits for losing excess weight to patients' medical, financial, and psychosocial well-being
- Roadblocks: barriers to losing weight, with options and strategies to address patient's barriers
- Repetition: reassess willingness to lose weight at subsequent visits; repeat intervention for unmotivated patients at every visit

Module C. Interventions for Weight Loss Recommendations

C-1. Diet Therapy

WEIGHT LOSS

43. Dietary interventions should be individually planned, in conjunction with physical activity, to create a caloric deficit of 500 to 1,000 kcal/day. Such negative energy balance may lead to a weight loss of 1 to 2 pounds per week. [B]

SELECTION OF SPECIFIC DIETS

44. Low-calorie diets (LCDs) should generally include 1,000 to 1,200 kcal/day for women and 1,200 to 1,600 kcal/day for men and should include the major nutrients in appropriate proportions (See Table 8). [B]
45. Very-low-calorie diets (VLCDs) that restrict calories to less than 800 kcal/day [15 kcal/kg ideal body weight] are not recommended for weight loss, but may be used short term (12 to 16 weeks) under medical supervision. [B]
46. Low-fat intake (20 to 30 percent of total calories/day), as part of low-calorie diets (LCDs), can be recommended to induce weight loss and should be recommended for patients with cardiovascular disease or lipid abnormalities. (See Table 6) [B]
47. Low-carbohydrate diets (less than 20 percent of total calories) may be used for short-term weight loss, but are not recommended for long-term dieting or weight maintenance. (See Table 6) [B]
48. Low-carbohydrate diets can be recommended to reduce serum triglyceride levels for overweight patients with mixed dyslipidemia. [B]
49. Low-carbohydrate diets are not recommended for patients with hepatic or renal disease or for patients with diabetes who are unable to monitor blood glucose. [C]

50. Low-calorie diets (LCDs) or very low-calorie diets (VLCDs) may include meal replacements (e.g., bars and shakes). [A]

51. There is insufficient evidence to recommend for or against a diet limited to foods with a glycemic index less than 55 as a means of producing weight loss. [C]

COMMERCIAL DIET

52. Patients should be encouraged to adhere to a specific diet, as adherence to any diet plan from a variety of programs (e.g., Atkins, Ornish, Weight Watchers, and Zone) has been shown to be the most important factor in achieving weight reduction. [B] (See Table 7)

C-2. Physical Activity

53. Weight loss interventions should include exercise to promote weight loss [A], maintain weight loss [A], decrease abdominal obesity [B], improve cardiovascular fitness [A], improve cardiovascular outcomes [A], and decrease all-cause and cardiovascular mortality [B].

54. Home fitness/lifestyle activities or structured supervised programs may be effectively used to produce a caloric expenditure leading to weight loss. [A]

55. Moderate levels of physical activity should be performed at least 30 minutes most days of the week. [B]

56. Physical activity may include short intermittent bursts (10 minutes or longer) as well as longer continuous exercise. [A]

C-3. Behavioral Modification Strategies

57. Behavioral modification interventions to improve adherence to diet and physical activity should be given to overweight or obese individuals. [B]

58. Behavioral modification interventions should be provided at a higher intensity when possible for greater effectiveness. Higher intensity is defined as more than one personal contact per month for the first three months (individual or group setting). Less frequent intervention may be an ineffective and inefficient use of manpower. [B]

59. Multiple behavioral modification strategies should be used in combination for greater effectiveness. [A]

60. Behavioral modification intervention should be delivered in a group format when possible rather than individually. [B]

61. For individuals unable or unwilling to participate in weight loss treatment in person, telephone or internet-based behavioral modification intervention may be considered. [B]

62. Behavioral modification intervention should be continued on a long-term basis to promote maintenance of weight loss. [B]

C-4. Pharmacotherapy (For drug information see Tables 9 and 10)

63. Adult patients with a BMI greater than 30 kg/m^2 or a BMI greater than 27 kg/m^2 with obesity-associated conditions may be considered for pharmacotherapy in combination with a reduced-calorie diet, increased physical activity and behavioral therapy. [B]

64. Patients who do not respond to medication with a reasonable weight loss should be evaluated for adherence to the medication regimen and adjunctive therapies or considered for an adjustment of dosage. [I]

65. If the patient continues to be unresponsive to the medication, or serious adverse effects occur, the use of medication should be discontinued. [I]

ORLISTAT

66. Orlistat may be considered to reduce body weight [B] and improve obesity-associated cardiovascular risk factors [C].

67. Patients who have lost 5 percent or more of their body weight after 12 weeks of treatment or lost an average of 1 pound or more per week with orlistat should continue their current treatment, as they are more likely to experience sustained weight loss. [B]

68. Orlistat may be considered as a component of weight maintenance programs for up to 4 years. [B]

69. Patients prescribed orlistat should take a multiple vitamin that includes fat soluble vitamins. [Expert Opinion]

SIBUTRAMINE

70. Sibutramine may be considered to reduce body weight [B] and improve glycemic and lipid parameters [C].

71. Patients who have lost an average of 1 pound or more per week during the first 4 weeks of therapy with sibutramine should continue treatment, barring any intolerable side effects. [Expert Opinion]

72. Patients who fail to lose 4 pounds after 4 weeks treated with sibutramine should have their adherence assessed and, if appropriate, an increase in the dose for an additional 4-week trial. [I]

73. Sibutramine may be considered as a component of weight maintenance programs for up to 2 years. [B]

74. Sibutramine should be discontinued if it is not efficacious in helping the patient to lose or maintain weight loss. [B]

75. Sibutramine should be used with caution as it can elevate blood pressure and heart rate. [A]

76. Adult patients with uncontrolled hypertension, cardiovascular disease, or a history of myocardial infarction (MI) or stroke should not include sibutramine as a part of their weight loss program due to the increased risk of harm. [D]

77. Sibutramine should be avoided in patients taking selective serotonin reuptake inhibitors (SSRIs), monoamine oxidase inhibitors (MAOIs), triptans, pseudoephedrine, and other agents that affect serotonin. [D]

C-5. Bariatric Surgery

78. Adult patients with extreme obesity (BMI 40 kg/m^2 or more) or obesity (BMI 35 kg/m^2 or more with one or more obesity-associated chronic health condition) may be considered for bariatric surgery to reduce body weight [A], improve obesity-associated comorbidities [B], and improve quality of life [B].

79. Roux-en-y Gastric Bypass (RYGB) is recommended as the bariatric procedure with the most robust evidence for inducing sustained weight loss [B] for patients with BMI greater than 40 kg/m^2.

80. There is insufficient evidence to recommend for or against the routine use of bariatric surgery in those over 65 years of age and patients with a substantial surgical risk. [I]

81. Providers should engage all patients who are candidates for bariatric surgery in a detailed discussion of the benefits and potential risks of bariatric procedures. [I]

82. Relative contraindications to bariatric surgery that are supported only by expert consensus include:

- Unstable coronary artery disease, severe pulmonary disease, portal hypertension or other conditions that can compromise anesthesia or wound healing
- Patients who are unable to comprehend basic principles of surgery or follow-up postoperative instructions
- Patients having had multiple abdominal operations, complicated incisional hernias, or infection resulting in a multiple, diffuse, or severe intra-abdominal infection
- Patients who have illnesses that greatly reduce life expectancy and/or are unlikely to be improved in their medical condition by surgically-induced weight reduction (e.g., cancer).

83. Lifelong medical follow-up after surgery is necessary to monitor adherence to treatment, adverse effects and complications, dietary restrictions, and behavioral health. [I]

TABLES

Table 1: Classification of Overweight and Obesity by BMI and Associated Disease Risk (*)

Classification	BMI (kg/m^2)	Disease Risk* with Normal Waist Circumference	Disease Risk* with Excessive Waist Circumference
Underweight	< 18.5	–	–
Normal	18.5 – 24.9	–	–
Overweight	25 – 29.9	Increased	Moderate
Obese I	30 – 34.9	Moderate	Severe
Obese II	35 – 39.9	Severe	Very Severe
Obese III	≥ 40	Very Severe	Very Severe

** Disease risk for obesity-associated conditions*

Table 2: Obesity-Associated Chronic Health Conditions

The presence of any of the following conditions that are directly influenced by weight warrants weight loss therapy:

Hypertension
Type 2 Diabetes
Dyslipidemia
Metabolic Syndrome *
Obstructive Sleep Apnea
Degenerative Joint Disease (DJD)

** For a definition of Metabolic Syndrome, see Annotation L, Table 6.*

Table 3: Effect of Medications on Body Weight

Medication Classes	Marked Weight Gain	Moderate Weight Gain	Slight Weight Gain	No Weight Change
Antidepressants	Amitriptyline Clomipramine Doxepin Imipramine Maprotiline Nortriptyline Trimipramine	Desipramine Isocarboxazid Mirtazapine Paroxetin	Phenelzine	Citalopram Fluoxetine Fluvoxamine Nefazodone Protriptyline Sertraline Tranylcypromine Venlafaxine
Mood stabilizers/ anticonvulsants	Lithium Valproate	Carbamazepine	–	Gabapentine Lamotrigine
Antipsychotics	Chlorpromazine Clozapine Olanzapine Perphenazine Thioridazine Trifluoperazine	Aripiprazole Risperidone	Flupentixol Fluphenazine Haloperidol Molindone Pimozide	Quetiapine Ziprasidone
Antihistamines	Cyproheptadine	–	–	Inhalers, decongestants
Antihypertensives	Propranolol Terazosin	–	–	ACE Inhibitors Calcium channel blockers
Anti-diabetics	Insulin Sulfonylureas Thiazolidinediones	–	–	Acarbose Exesatide Metformin Pramlintide
Contraceptives	–	Depomedroxy progesterone acetate (DMPA)	–	Other contraceptives
Corticosteroids	Betamethasone Cortisone Dexamethasone Hydrocortisone Prednisone Prednisolone Triamcinolone	–	–	–

Table 4: Indications for More Intensive Weight Loss Therapy

The presence of the following conditions, directly influenced by weight loss, warrants consideration of more intensive therapy with drugs or surgery:

Hypertension
Type 2 Diabetes
Dyslipidemia
Metabolic Syndrome
Obstructive Sleep Apnea

Table 5: Diagnosis of Metabolic Syndrome [NCEP ATP-III, 2002]	
Three or more of the following risk factors indicate metabolic syndrome:	**Defining Level**
Abdominal Obesity: Men† Women	Waist Circumference (WC): Greater than 102 cm (>40 in) Greater than 88 cm (>35 in)
Triglycerides	Greater than or equal to 150 mg/dL
HDL cholesterol: Men Women	 Less than 40 mg/dL Less than 50 mg/dL
Blood pressure	Greater than or equal to 130/85 mmHg
Fasting glucose	Greater than or equal to 110 mg/dL

† Some men can develop multiple metabolic risk factors when the WC is only marginally increased, e.g., 37–39 inches (94–102 cm). Such persons may have a strong genetic contribution to insulin resistance. They should benefit from changes in life habits, similarly to men with categorical increases in WC.

Table 6: Definitions of Common Diets			
Diet approach	**Content (% of total calories)**		
	Fat	**Carbohydrates**	**Protein**
Very-low carbohydrates (High-fat)	55 – 65	< 20 (< 100g)	25 – 30
Low carbohydrates (Moderate-fat)	20 – 30	30 – 40	25 – 30
Moderate-fat, balanced nutrient reduction (Low-calorie)	20 – 30	55 – 60	15 – 20
Low-fat	11 – 19	> 65	10 – 20

(Adapted from Freedman et al., 2001)

Table 7: Popular Commercial Diet Programs*	
Type of diet	**Examples**
High-fat Low carbohydrate	Atkins Diet ™ South Beach ™ Sugar Busters ® The Carbohydrate Addict's Diet Protein Power ©
High-protein Moderate carbohydrate	Zone Diet ®
Moderate-fat Balanced Nutrient LCD	Jenny Craig ™ Nutri-Systems ® Weight-Watchers ® LA Weight Loss ® Mediterranean Diet
VLCD	Medifast® OPTIFAST®
Meal Replacements	Slim-Fast ™
Low-Fat Very-Low-Fat	Dean Ornish Program © Pritikin Program ™

**This is a partial list and is not an endorsement of the diets mentioned.*

Body Mass Index Table

	Normal						Overweight					Obese										Extreme Obesity																				
BMI	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**
Height (inches)	**Body Weight (pounds)**																																							
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	196	201	205	210	215	220	224	229	234	239	244	248	253	258
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198	203	208	212	217	222	227	232	237	242	247	252	257	262	267
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204	209	215	220	225	230	235	240	245	250	255	261	266	271	276
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211	217	222	227	232	238	243	248	254	259	264	269	275	280	285
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218	224	229	235	240	246	251	256	262	267	273	278	284	289	295
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225	231	237	242	248	254	259	265	270	278	282	287	293	299	304
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227	232	238	244	250	256	262	267	273	279	285	291	296	302	308	314
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241	247	253	260	266	272	278	284	291	297	303	309	315	322	328	334
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255	261	268	274	280	287	293	299	306	312	319	325	331	338	344
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	243	249	256	262	269	276	282	289	295	302	308	315	322	328	335	341	348	354
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243	250	257	263	270	277	284	291	297	304	311	318	324	331	338	345	351	358	365
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278	285	292	299	306	313	320	327	334	341	348	355	362	369	376
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286	293	301	308	315	322	329	338	343	351	358	365	372	379	386
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294	302	309	316	324	331	338	346	353	361	368	375	383	390	397
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295	302	310	318	325	333	340	348	355	363	371	378	386	393	401	408
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311	319	326	334	342	350	358	365	373	381	389	396	404	412	420
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319	327	335	343	351	359	367	375	383	391	399	407	415	423	431
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	336	344	353	361	369	377	385	394	402	410	418	426	435	443

Source: Adapted from *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report*.

Diet Therapy

Table 8: Low-Calorie Diet – General Guideline	
Nutrient	**Recommended Intake**
Calories	To achieve and maintain desired weight
Total Fat	30% or less of total calories
Saturated Fat	7 – 10% of total calories
Polyunsaturated Fat	Up to 10% of total calories
Monounsaturated Fat	Up to 15% of total calories
Cholesterol	Less than 300 mg/day
Protein	Approximately 15% of total calories
Carbohydrate	55% or more of total calories20 – 30 grams/day
Sodium Chloride	No more than 100 mmol/day (approximately 2.4 grams of sodium or 6 grams of sodium chloride)
Calcium	1,000 – 1,500 mg/day
Fiber	20 – 30 grams/day

NHLBI, 1998

Table 9: Recommended Dosage for Selected Obesity Drug Therapy

Drug	Usual Dosage Range	Comments
		Gastrointestinal Lipase Inhibitor
Orlistat	120 mg three times daily	Taken with or within 1 hour of each meal containing fat. Omit dose if a meal is skipped or a meal contains no fat. Must take once daily multivitamin at least 2 hours prior to orlistat (containing fat soluble vitamins A, D, E and K). *Cautions:* Increased gastrointestinal events (adverse effects) when orlistat is taken with diet high in fat (greater than 30% total daily calories from fat). Orlistat is FDA Category B and is not recommended for use during pregnancy. It is not known if orlistat is secreted in human breast milk. Orlistat should not be taken by mothers who are nursing.
		Dopamine, Serotonin, Norepinephrine Reuptake Inhibitor
Sibutramine	10 mg daily 15 mg daily (if after 4 weeks weight loss is not adequate)	Taken with or without food. *Contraindications:* Contraindicated in patients receiving monoamine oxidase inhibitors (MAOIs). Contraindicated in patients who have a major eating disorder (anorexia nervosa or bulimia nervosa). *Cautions:* Sibutramine substantially increases blood pressure and/or pulse rate in some patients. Regular monitoring of blood pressure and pulse rate is required when prescribing. Sibutramine should not be used in patients with a history of coronary artery disease, congestive failure, arrhythmias, or stroke. Sibutramine can cause mydriasis; it should be used with caution in patients with narrow angle glaucoma. Organic causes of obesity (e.g., untreated hypothyroidism) should be excluded before prescribing. Certain centrally-acting weight loss agents that cause release of serotonin from nerve terminals been associated with pulmonary hypertension, a rare but lethal disease. It is not known if sibutramine can cause this disease. Use cautiously in patients with a history of seizures. Discontinue in patients who develop seizures. There have been reports of bleeding in patients taking sibutramine. While a causal relationship unclear, caution is advised in patients predisposed to bleeding events and those taking concomitant medications known to affect hemostasis or platelet function. Weight loss can precipitate or exacerbate gallstone formation. Patients with severe renal impairment or severe hepatic dysfunction have not been systematically studied; therefore it is not to be used in such patients. Sibutramine did not affect psychomotor or cognitive performance in healthy volunteers; however, any central nervous system active drug has the potential to impair judgment, thinking, or motor skills. Sibutramine is FDA Category C and its use during pregnancy is not recommended. It is not known if sibutramine or its metabolites are secreted in human breast milk. Sibutramine should not be taken by mothers who are nursing.

For complete drug information, review the manufacturer's prescribing information: Roche, Inc. package literature for Xenical, 1999, revised September 2, 2005; Abbott, Inc. package literature for Meridia, Sep 2004. Check for updated monographs at www.pbm.va.gov

Sibutramine dosage:

- Patients who have lost less than 4 pounds after 4 weeks of treatment with sibutramine 10 mg per day can have their dose increased to 15 mg per day.
- Patients who have lost greater than or equal to 4 pounds after 4 weeks of treatment with sibutramine 10 mg or 15 mg per day should continue sibutramine. Those who do not should be reevaluated.

Table 10: Drug or Nutrient Interactions with Anti-Obesity Agents

Interactive Agent(s)		Clinical Manifestations
Orlistat	Cyclosporine	May decrease CYCLOSPORINE whole blood concentrations (possibly resulting in a decrease in the immunosuppressive action of CYCLOSPORINE; monitor and adjust as necessary). Take cyclosporine 2 hours before or after orlistat. More frequent monitoring of cyclosporine levels should be considered.
	Fat Soluble Vitamins (A, D, E)	May decrease absorption of some fat soluble vitamins (A, D, E, and K). Levels of vitamin D and beta-carotene may be low in obese patients compared with non-obese subjects. The supplement should be taken 2 hours before or after orlistat.
	Warfarin	Patients taking warfarin should be monitored closely and warfarin dose adjusted accordingly.
Sibutramine	Dextromethorphan Ergot Alkaloids Dihydroergotamine Ergotamine Methysergide Lithium MAO Inhibitors Isocarboxazid, Phenelzine, Tranylcypromine Meperidine Selective 5-HT1 Receptor Agonists Naratriptan, Rizatriptan, Sumatriptan, Zolmitriptan Serotonin Reuptake Inhibitors Fluoxetine, Fluvoxamine, Nefazodone, Paroxetin Sertraline, Venlafaxine Tryptophan Pseudoephedrine	May increase the risk of serotonin syndrome. Typical symptoms of serotonine syndrome include tachycardia and hypertension. In severe cases, hyperthermia and dramatic swings in pulse and blood pressure may develop. Physical examination findings include: hyper thermia; agitation; slow, continuous, horizontal, eye movements (referred to as ocular clonus); tremor; akathisia; deep tendon hyper reflexia; inducible or spontaneous clonus; muscle rigidity; bilateral Babinski signs; dilated pupils; dry mucus membranes; increased bowel sounds; flushed skin; and diaphoresis. Neuromuscular findings are typically more pronounced in the lower extremities. Concomitant administration of these agents is not recommended by the manufacturer. If concurrent use cannot be avoided, carefully monitor the patient for adverse effects. The serotonin syndrome requires immediate medical attention.

**This table includes significant drug interactions (to date) and may not encompass all possible agents.*

For complete drug information, review the manufacturer's prescribing information:

1. *Roche, Inc package literature for Xenical, 1999.*
2. *Abbott, Inc. package literature for Meridia, Sep 2004.*
3. *Drug Facts & Comparisons. Drug Interaction Facts. J.B. Lippincott Co., St. Louis, Missouri, 2004.*

Acronym List

BMI	Body Mass Index
CAD	Coronary Artery Disease
CVD	Cardiovascular Disease
DJD	Degenerative Joint Disease
DM	Diabetes Mellitus
LCD	Low-Calorie Diet
MAOI	Monoamine Oxidase Inhibitors
MI	Myocardial Infarction
NHLBI	National Heart, Lung, and Blood Institute
RYGB	Roux-en-y Gastric Bypass
SSRI	Selective Serotonin Reuptake Inhibitor
TLC	Therapeutic Lifestyle Changes
TSH	Thyroid Function Tests
USPSTF	U.S. Preventive Services Task Force
VLCD	Very-Low-Calorie Diet
WC	Waist Circumference

Strength of Recommendation Ratings				
	The net benefit of the intervention			
Quality of Evidence	Substantial	Moderate	Small	Zero or Negative
Good	A	B	C	D
Fair	B	B	C	D
Poor	I	I	I	I

A	A strong recommendation that the clinicians provide the intervention to eligible patients. *Good evidence was found that the intervention improves important health outcomes and concludes that benefits substantially outweigh harm.*
B	A recommendation that clinicians provide (the service) to eligible patients. *At least fair evidence was found that the intervention improves health outcomes and concludes that benefits outweigh harm.*
C	No recommendation for or against the routine provision of the intervention is made. *At least fair evidence was found that the intervention can improve health outcomes, but concludes that the balance of benefits and harms is too close to justify a general recommendation.*
D	Recommendation is made against routinely providing the intervention to asymptomatic patients. *At least fair evidence was found that the intervention is ineffective or that harms outweigh benefits.*
I	The conclusion is that the evidence is insufficient to recommend for or against routinely providing the intervention. *Evidence that the intervention is effective is lacking, or poor quality, or conflicting and the balance of benefits and harms cannot be determined.*